

PROBLEM STATEMENT

Due to population growth and shift across New Hampshire, investment in active transportation infrastructure to promote safety, sustainability, and protect socially vulnerable areas is needed. In order to identify key areas for active transportation enhancement, to justify investment, and to measure success, it was necessary to understand where and when people are bicycling and improve how bicycle-pedestrian projects are evaluated.

PROJECT OBJECTIVES

Objective 1: Assess the reliability of STRAVA¹ data to reflect bicycling activity in New Hampshire

Objective 2: Evaluate the ability of Level of Traffic Stress (LTS) to predict bicycling patterns and barriers to active transportation

Objective 3: Evaluate perceived barriers to active transportation (e.g. safety concerns) against objective physical barriers as reflected in LTS model

Objective 4: Evaluate the accuracy of current LTS model using public participatory GIS (PPGIS)

¹Social fitness network used to track fitness activities.

PROJECT PARTNERS

Project Partners and Advisory Group:

- NHDOT Complete Streets Advisory Committee (CSAC)
- NH Healthy Eating Active Living program
- Bike – Walk Alliance of NH
- Representatives from regional planning commissions (RPC), Central NHRPC & Nashua RPC

Link to NHDOT Research Project Page:

<https://www.nh.gov/dot/org/projectdevelopment/materials/research/projects/26962r.htm>

METHODS AND FINDINGS

The four levels of traffic stress are based on the four types of cyclists². Each combination of road conditions corresponds to a population class term³ for which the road is suitable.

²Geller, 2009.

³Edmiston, 2012.

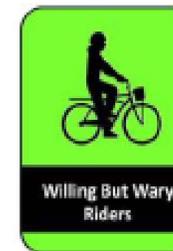
LTS1



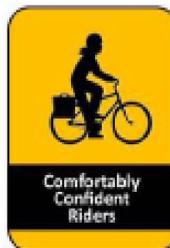
LTS 1, "No Way No How": Strong separation from all automobiles, except low speed and volume traffic. Simple-to-use crossings. Suitable for children.

LTS 2, Willing But Wary: Cyclists have their own place to ride that keeps them from having to interact with traffic. Crossings are easy for an adult to negotiate.

LTS2



LTS3



LTS 3, Comfortably Confident: Willing to ride with minimal accommodations. Interaction with moderate speed or multi-lane traffic, or close proximity to higher speed traffic.

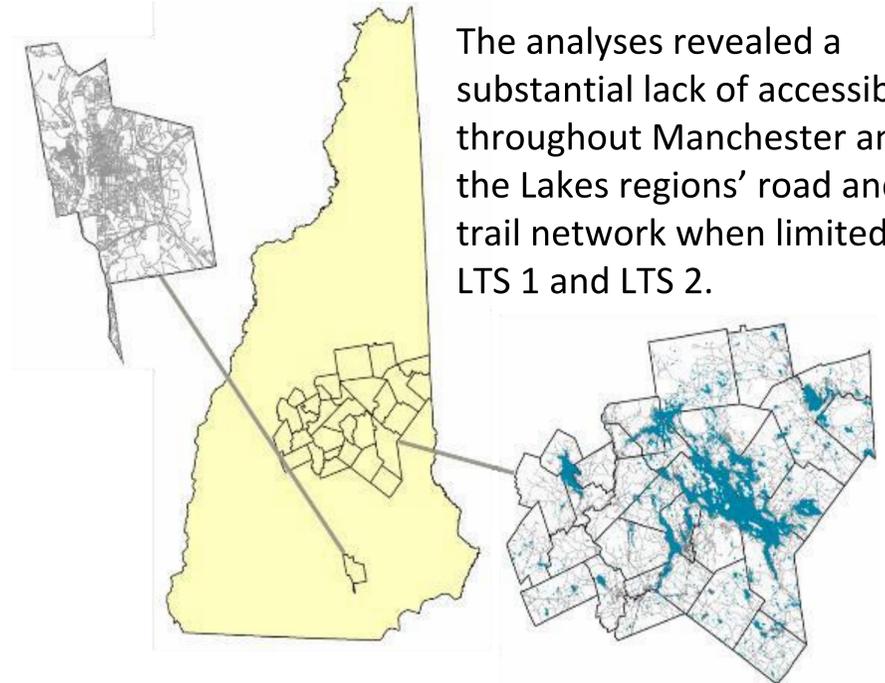
LTS4



LTS 4, Fit and Fearless: Willing to ride under any conditions. Forced to mix with moderate speed traffic or close proximity to high speed traffic.

Reasons for Flagging Road Segment as Hazardous:

- Blind hills
- Driver attitude
- Flooding
- Terrain too steep
- Poor road surface condition
- Traffic too fast
- Shoulders too narrow
- Too many vehicles
- No bike lane or path



The analyses revealed a substantial lack of accessibility throughout Manchester and the Lakes regions' road and trail network when limited to LTS 1 and LTS 2.

Focal Region	Total Routes	% of Total Routes Accessible via Roads Rated:	
		LTS 1, 2, or 3, or Trails	LTS 1 or 2
Lakes	350	11%	3%
Manchester	16,274	88%	20%

PROJECT OUTCOMES

These project outcomes will improve active transportation accounting during project selection, monitoring, and evaluation which will lead to a more sustainable NH transportation network:

- Framework for evaluating bicycle-pedestrian activity and use of facilities
- Informative bikability metrics and STRAVA-based biking summaries across the state
- ArcGIS tools that use STRAVA data to summarize bicycling trends
- Level of Traffic Stress (LTS) GIS layers for the entire state
- Summary of Origin-Destination analyses and LTS assessment for focal regions
- Public participation GIS (PPGIS) maps of perceived barriers, conflict areas, and preferred routes